UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/040,129	01/02/2002	Cory R. Carpenter	BEA920010029US1	8791

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EXAMINER
HUYNH, CONG LAC T

ART UNIT	PAPER NUMBER
2178	

DATE MAILED: 09/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	10/040,129	CARPENTER, CORY R.
	Examiner	Art Unit	
	Cong-Lac Huynh	2178	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>05 August 2005</u>.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-21</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1-21</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

1.   This action is responsive to communications: RCE filed 8/5/05 to the application

filed on 1/02/02.

2.   Claims 1-21 are pending in the case. Claims 1, 9, 15, 19 are independent

claims.

3.   The rejections of claims 1-21 under 35 U.S.C. 102(b) as being anticipated by

Jang have been withdrawn in view of the amendment.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

5.   Claims 1-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Jang et al., *An Effective Mechanism for Index Update in Structured Documents*, ACM

1999, pages 383-390 in view of Davis (US Pat App Pub No. 2005/0086216 A1, 4/21/05,

filed 11/4/04, priority 2/17/00).

Regarding independent claim 1, Jang discloses:

-   following hierarchy of said data structure to reach a root of said data structure

    (page 384, section 2.1 Unique element identifier (UID): traversing the

    structured document according to the order of the level-order tree implies

traversing from the root to an element of the structured document where said

element is considered equivalent to a target object; this inherently shows

reaching the root of the structured document, which is the hierarchy, is performed

before the traversal)

- traversing the data structure from said root until a target object is encountered

(page 384, section 2.1 Unique element identifier (UID): traversing the

structured document according to the order of the <u>level-order</u> tree implies

traversing from the root to an element of the structured document where said

element is considered equivalent to a target object)

- dynamically generating said identifier from a location of said target in said data

structure **(page 384, section 2.1 Unique element identifier (UID) and 2.2**

Indexing and retrieval with UID: assigning each encountered element in the

structured document a UID according to the order of the level-order tree traversal

and during the scanning through the document)

- delivering said identifier to client workstation **(page 387, Retrieval**: retrieval of a

user query is for delivering an answer to a query to a user, thus retrieval of a user

query on an identifier of a target object in a document is for delivering said

identifier to a user at client workstation)

Jang does not disclose that the database of said data structure used in search and

retrieval is an object-oriented database.

Davis discloses that search and retrieval is applied on an object-oriented database or a

relational database indexed data ([0010], [0013]).

It would have been obvious to one of ordinary skill in the art at the time of the invention

was made to have combined Davis into Jang since the fact that the object-oriented

database or the relational database with indexed data is used in searching and retrieval

in Davis provides the advantage to incorporate into Jang for effectively conducting the

search and retrieval in various databases instead of limiting in relational database to

quickly render responses to a user query.

Regarding claim 2, which is dependent on claim 1, Jang discloses incrementing a

counter when a specified branch of the data structure is encountered (page 385, figure

2: counter c_1 increments to c_2 when a specified branch of the structure is encountered).

Regarding claim 3, which is dependent on claim 1, Jang discloses that traversing the

data structure includes clearing a counter when a specified branch of the data structure

is closed (page 385, figure 2: clearing a counter when the branch (c_1, s_1, p_1-p_3) is

closed).

Regarding claim 4, which is dependent on claim 1, Jang discloses traversing the data

structure includes recursively traversing the data structure (**page 385, last paragraph**

to page 386, 2nd paragraph: assigning the UIDs to the elements of the structure

document *during the traversal* where the UIDs reflect the *parent-child relationships*

among the elements inherently shows recursively traversing. The reason is that it was

known that each node above a target node is recursively determined and included in the

document in walking up the tree. And also, it was known that each node below a target

node is recursively determined and included in the document in walking down the tree).

Regarding claim 5, which is dependent on claim 1, Jang discloses updating said

reference identifier to reflect changes in said data structure (page 386, 4.2 Changes in

element structures, figure 6, page 387, 4.3 Update of postings: the UID is changed

when the structured document is changed by insertion and deletion).

Regarding claim 6, which is dependent on claim 5, Jang discloses that updating said

reference identifier includes resetting an index for said data structure when content of

said data structure is amended (page 386, 4. Update of indices, 4.1 Change in element

content: update the indices and UIDs when the content of the structured document is

changed by insertion or deletion).

Regarding claim 7, which is dependent on claim 6, Jang discloses that the amended

content includes content selected from the group consisting of: inserted content,

removed content, and reorganized content (page 384, 2nd paragraph, page 386, 4.

Update of Indices, 4.1 Change in element content, and 4.2 Changes in element

structures).

Regarding claim 8, which is dependent on claim 1, Jang discloses that said data

structure is a standardized mark-up language (page 385, figure 4: SGML/XML

documents, page 390, 7. Conclusion and future works).

Claims 9-14 are for a system of method claims 1-3, 5-8, and are rejected under the

same rationale.

Claims 15-18 are for an article of method claims 1-3, and are rejected under the same

rationale.

Regarding independent claim 19, Jang discloses:

- following hierarchy of said data structure to reach a root of said data structure

  (page 384, section 2.1 Unique element identifier (UID): traversing the

  structured document according to the order of the level-order tree implies

  traversing from the root to an element of the structured document where said

  element is considered equivalent to a target object; this inherently shows

  reaching the root of the structured document, which is the hierarchy, is performed

  before the traversal)

- traversing the data structure from said root until a target object is encountered

  (page 384, section 2.1 Unique element identifier (UID): traversing the

  structured document according to the order of the level-order tree implies

traversing from the root to an element of the structured document where said

element is considered equivalent to a target object)

- wherein the step of traversing the data structure includes changing a counter

   when a branch of said data structure in encountered (page 385, figure 2)

- generating said identifier from a location of said target in said data structure

   (page 384, section 2.1 Unique element identifier (UID): assigning each

   encountered element in the structured document a UID)

Jang does not disclose that the database of said data structure used in search and

retrieval is an object-oriented database.

Davis discloses that search and retrieval is applied on an object-oriented database or a

relational database indexed data ([0010], [0013]).

It would have been obvious to one of ordinary skill in the art at the time of the invention

was made to have combined Davis into Jang since the fact that the object-oriented

database or the relational database with indexed data is used in searching and retrieval

in Davis provides the advantage to incorporate into Jang for effectively conducting the

search and retrieval in various databases instead of limiting in a relational database and

to quickly render responses to a user query.

Regarding claim 20, which is dependent on claim 19, Jang discloses clearing said

counter when a specified branch of said data structure is closed and a target object is

null, and incrementing said counter when a specified branch of said data structure is

encountered (page 385, figure 2: when branch c1 with nodes c1, s1, s2, p1-p3 is closed

and the target node is null, the counter p(n) is cleared, and c1 is incremented to c2

when the branch starting with node c2 is encountered).

Regarding claim 21, which is dependent on claim 19, Jang discloses updating said

reference identifier to reflect changes in said data structure (page 386, 4.2 Changes in

element structures; page 387, 4.3 Update of postings).

Response to Arguments

6.   Applicant's arguments filed 8/5/05 have been fully considered but they are not

persuasive.

Applicants argue that Jang is applied in the relational database, not in the object-

oriented database as disclosed in the specification of the invention (Remarks, page 6).

Examiner agrees.

Davis discloses that search and retrieval is applied on the object-oriented database or

the relational database indexed data ([0010], [0013]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the

invention was made to have combined Davis into Jang since the fact that the object-

oriented database or the relational database with indexed data is used in searching and

retrieval in Davis provides the advantage to incorporate into Jang for effectively

conducting the search and retrieval in various databases instead of limiting in relational

database to quickly render responses to a user query.

It is noted that the specification of the invention points out that the database used for this invention may be a relational database or an object-oriented database and the invention can be used in a relational database instead of an object-oriented database (page 6, lines 22-23, page 10, lines 4-6) without a need of any data conversion mentioned. Therefore, the object-oriented database for any search and retrieval would be clearly applicable.

Conclusion

7.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Tsai (US Pat App Pub No. 2002/0107838 A1, 8/8/02, 1/5/99).

Rishe (US Pat App Pub No. 2002/0107840 A1, 8/8/02, 12/01/00, priority 9/12/00).

Levy et al. (US Pat App Pub No. 2002/0138456 A1, 9/26/02, 10/30/01, priority 10/30/00).

Shadmon et al. (US Pat App Pub No. 2002/0120598 A1, 8/29/02, 2/26/01).

Fuhr et al., XIRQL : A Query Language for Information Retrieval in XML Documents, ACM 2001, pages 172-180.

Shin et al., BUS : An Effective Indexing and Retrieval Scheme in Structured Documents, ACM 1998, pages 235-243.

8.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cong-Lac Huynh whose telephone number is 571-272-4125. The examiner can normally be reached on Mon-Fri (8:30-6:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Stephen Hong can be reached on 571-272-4124. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-4125.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

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For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

Cong-Lac Huynh
Examiner
Art Unit 2178
8/31/05